Title (en)

A method and device for laser cutting articles, in particular sanitary products and components thereof, with a laser spot diameter between 0.1 and 0.3 mm

Title (de)

Verfanren und Vorrichtung zum Laserschneiden von Artikeln, insbesondere Sanitärprodukten und ihren Bestandteilen, mit einem Laserfokuspunktdurchmesser von 0.1 bis 0.3 mm

Title (fr)

Procédé et dispositif de découpe par laser d'articles, en particulier d'articles d'hygiène, avec un diamètre de foculisation du faisceau laser compris entre 0.1 et 0.3 mm

Publication

EP 1736272 A1 20061227 (EN)

Application

EP 05425450 A 20050621

Priority

EP 05425450 A 20050621

Abstract (en)

The present application describes a device for subjecting to laser treatment articles (A), in particular articles chosen between sanitary products and components of said products (A), comprises a laser-beam source (1) configured (2,3) for applying to the articles (A) a laser spot with a diameter of between 50 ¼m and 2000 ¼m. Preferentially, the laser (1) has a wavelength of between 9.0 ¼m and 11.0 ¼m and it is with the beam mode chosen between OO MODE, D MODE and Q MODE. In a preferred way, the laser source (1) generates a non-parallel beam and the optical distance between said laser source (1) and said deflectors (3) is variable for regulating the diameter of said laser beam. To convey the laser beam towards the articles (A) pressurized pipes are provided, as well as reflection systems (2) and deflection systems (3). A system of movement (3,9) is provided for producing a scanning movement between the laser spot and the articles (A), as well as a real-time control unit (4), configured for regulating (4) the power associated to the laser spot as a function of the instantaneous speed of the aforesaid relative movement, obtained preferentially via a conveyor (9), which feeds the articles in a direction (z), and at least one deflection unit (3), which imparts on the laser spot a movement of deflection with at least one component in a transverse direction (x) with respect to the direction (z) of advance of the articles (A).

IPC 8 full level

B23K 26/06 (2006.01); **A61F 13/15** (2006.01); **B23K 26/08** (2006.01); **B23K 26/32** (2006.01); **B23K 26/40** (2006.01); **B29C 65/74** (2006.01)

CPC (source: EP US)

A61F 13/15699 (2013.01 - EP US); **A61F 13/15723** (2013.01 - EP US); **B23K 26/073** (2013.01 - EP US); **B23K 26/0838** (2013.01 - EP US); **B23K 26/324** (2013.01 - EP US); B23K 2103/38 (2018.07 - EP US); B23K 2103/50 (2018.07 - EP US); B29C 65/1616 (2013.01 - EP US); B29C 65/1619 (2013.01 - EP US); B29C 65/1638 (2013.01 - EP US); B29C 65/1654 (2013.01 - EP US); B29C 65/7473 (2013.01 - EP US); B29C 66/836 (2013.01 - EP US); B29L 2031/4878 (2013.01 - EP US)

Citation (search report)

- [XAY] WO 9619313 A1 19960627 - MOELNLYCKE AB [SE], et al
- [YA] US 6327875 B1 20011211 - ALLAIRE ROGER A [US], et al
- [YD] EP 1447068 A1 20040818 - FAMECCANICA DATA SPA [IT]
- [X] US 2004045323 A1 20040311 - SCHULTZ PETER [US], et al
- [X] DE 19605888 A1 19970821 - INPRO INNOVATIONS GMBH [DE]
- [X] US 2005098547 A1 20050512 - CALI DOUGLAS S [US], et al
- [X] US 6388231 B1 20020514 - ANDREWS JOHN R [US]
- [A] US 6433301 B1 20020813 - DUNSKY COREY M [US], et al
- [XY] US 5886319 A 19990323 - PRESTON MICHAEL [GB], et al
- [Y] US 6177648 B1 20010123 - LAWSON WILLIAM E [US], et al
- [X] US 5200592 A 19930406 - YABU MASAAKI [JP]
- [X] US 2003006217 A1 20030109 - DANCE BRUCE GUY IRVINE [GB]
- [X] US 5357365 A 19941018 - IPPOSHI TAKASHI [JP], et al
- [A] US 5262612 A 19931116 - MOMANY PATRICK J [US], et al
- [A] US 6191382 B1 20010220 - DAMIKOLAS GERRY [US]

Cited by

DE102008030374A1; EP2911635A4; RU2624293C2; ITBO20110078A1; GB2476081A; GB2476081B; DE102008030374B4; GB2476080A; GB2476080B; CN108747051A; WO2008081239A3; US7871400B2; WO2014064562A1; EP2258639A1; US8668076B2; US8445812B2; WO2018065839A1; US9149394B2; US11148227B2; WO2012114295A1; WO2018022107A1; TWI702134B

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA HR LV MK YU

DOCDB simple family (publication)

EP 1736272 A1 20061227; **EP 1736272 B1 20080319**; **EP 1736272 B9 20090812**; AT E389497 T1 20080415; BR PI0612574 A2 20101207; BR PI0612574 B1 20171121; CN 101203353 A 20080618; CN 101203353 B 20100922; DE 602005005464 D1 20080430; DE 602005005464 T2 20090423; DK 1736272 T3 20080721; DK 1736272 T5 20090420; ES 2303215 T3 20080801; JP 2008546540 A 20081225; US 2006283846 A1 20061221; US 7528343 B2 20090505; WO 2006136925 A1 20061228

DOCDB simple family (application)

EP 05425450 A 20050621; AT 05425450 T 20050621; BR PI0612574 A 20060616; CN 200680022519 A 20060616; DE 602005005464 T 20050621; DK 05425450 T 20050621; ES 05425450 T 20050621; IB 2006001686 W 20060616; JP 2008517623 A 20060616; US 39195506 A 20060329